

Clinical Predictors of a Positive MPox PCR: A Framework for Diagnostic Stewardship

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Introduction

In July 2022, an outbreak of MPox was reported in the United States as part of a world-wide health emergency. Healthcare settings in the US started to see possible cases, and the public health and clinical diagnostics infrastructure was once again overwhelmed. As the concept of diagnostic stewardship is becoming increasingly more important, we sought to identify clinical information obtainable at presentation that would predict a positive MPox PCR to streamline testing and optimize resource utilization.

Methods

The charts of 146 patients presenting for Mpx testing in a large healthcare system in Texas in July and August 2022 were reviewed to identify clinical factors available upon presentation that would correlate with a positive lesion PCR.

Results

49.3% of patients tested positive. The mean (SD) age of patients was 31.9 (8.41) years. The mean (SD) time of symptoms was 5.47 (5.08) days. The mean (SD) time from last sexual encounter was 17.6 (11.01) days. Table 1 shows the RR and diagnostic performance for each clinical factor resulting in a positive MPox PCR.

Conclusions

Male gender, non-heterosexual sexual orientation, recent sexual encounter, painful lesions, contact with a known MPox case, systemic symptoms, and shorter symptom duration (≤ 6 days) all increased the risk of a positive Mpx PCR result and may be used to prioritize testing in a resource constrained environment. Prospective validation of single and combined clinical factors for test prioritization is warranted.

Clinical factor	RR	95%CI	NNT	Sens	Spec	PPV	NPV
Male gender	10.513	(2.969, 61.159)	1.73	0.97	0.43	0.64	0.94
Non-Heterosexual orientation	3.791	(2.200, 6.802)	1.76	0.8	0.77	0.77	0.8
HIV infection	1.569	(1.068, 2.356)	3.72	0.7	0.58	0.74	0.53
Recent sexual encounter	2.26	(1.333, 4.094)	2.46	0.78	0.62	0.73	0.68
Multiple lesions	1.793	(0.803, 6.766)	4.2	0.96	0.1	0.54	0.7
Genital lesions	1.926	(1.352, 2.729)	2.99	0.65	0.69	0.7	0.64
Facial lesions	1.536	(1.097, 2.060)	4.26	0.47	0.75	0.67	0.56
Extremity lesions	0.837	(0.612, 1.214)	10.41	0.65	0.27	0.5	0.41
Trunk lesions	0.973	(0.683, 1.361)	70.44	0.42	0.57	0.51	0.47
Painful lesions	3.167	(1.934, 5.511)	2	0.82	0.67	0.73	0.77
Pruritic lesions	0.52	(0.293, 0.839)	3.34	0.17	0.58	0.32	0.37
Contact with known Mpx case	2.332	(1.221, 3.003)	2.14	0.31	0.95	0.82	0.67
Systemic Symptoms	2.484	(1.634, 3.901)	2.38	0.77	0.64	0.7	0.71
Symptom duration < 6 days	1.479	(1.000, 2.296)	5.17	0.73	0.44	0.6	0.6

Table 1